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THE DOW CHEMICAL COMPANY  
INTELLECTUAL PROPERTY SECTION  
P. O. BOX 1967  
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EXAMINER
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YAO, SAMCHUAN CUA

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1733

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/615,746  
Filing Date: July 09, 2003  
Appellant(s): HAAS, JAMES LYNN

**MAILED**

APR 18 2006

**GROUP 1700**

Mr. Steven W. Mork  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed on 02-08-06 appealing from the Office action mailed 10-13-05.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**WITHDRAWN REJECTIONS**

In order to reduce the issue before the board, while not conceding the merits of Appellant's arguments, the following ground of rejection is not presented for review on appeal because it has been withdrawn by the examiner:

The rejection of claims 1-13 and 20 under 35 U.S.C. 103 as being obvious over Gluck in view Hoffman has been withdrawn.

In light of Appellant's argument on independent claim 14, the rejection on this claim along with its dependent claims (i.e. claims 15-16) is withdrawn. For this reason, claims 14-16 are allowable.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

The following is a listing of the evidence (e.g., patents, publications, Official Notice, and admitted prior art) relied upon in the rejection of claims under appeal.

**Longdrigan et al (US 5,837,743)**, drawn to a process for making a laminated composite having a fiber-reinforced foam core, discloses substantially the process recited in the claims. The teachings of Longdrigan et al differs from independent claim 1 in that Longdrigan et al discloses supplying a low binder fiber mat and a support web using two separate feeding rolls (figure 1), while claim 1 requires feeding a composite comprising a low binder fiber mat and a support web on a single feeding roll.

**Hoffmann et al (US 4,804,425)**, drawn to making a similar type of laminated foam composite as Longdrigan et al, discloses providing a bottom covering layer by supplying a single roll of a composite comprising a mesh web such as a non-woven fleece and an aluminum facing web, and also providing a top covering layer by supplying a mesh web and an aluminum facing web (i.e. the same materials as the bottom covering layer) on separate feeding rolls into a belt-press laminator to form a laminated foamed composite (col. 5 lines 16-59; figure 1).

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

**Claims 1-13 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Longrigan et al (US 5,837,743) in view of Hoffmann et al (US 4,804,425).**

With respect to claims 1-2 and 11, Longrigan et al discloses a process of making a foam structural laminate, the process comprises: a) providing a 1<sup>st</sup> expandable reinforcing fiber mat (48), b) providing a pair of facing sheets (31,31'); c) combining the 1<sup>st</sup> reinforcing fiber mat and the bottom of the facing sheets to form a composite; d) impregnating the 1<sup>st</sup> reinforcing fiber mat of the composite with a liquid foamable resin mixture; e) compressing the top of the facing sheets and the composite using a pair of metering rolls (32,33); and, f) expanding the foamable resin into a foam between the pair of facing sheets (col. 12 line 41 to col. 14 line 39; figure 1). Although an expandable fiber mat is not explicitly described as a low binder fiber mat, the expandable fiber mat is taken to be a low binder fiber mat, because this mat consists of a fibrous mat disclosed in US Patent 4,028,158 issued to Hipchen et al. The fibrous mat in Patent '158 comprises glass fibers and minor amount of binder resin (i.e. as low as 2% by weight based on the total mat weight) (col. 3 lines 6-17). Accordingly, the fiber mat is stable dimensionally, but expansible to allow for an effective penetration of foamable resin mixture into the interstices of the mat (col. 3 lines 13-17).

As for a limitation of "... *the fibers of the low binder fiber mat become dispersed within the polymeric foam*", this limitation is expected to naturally flow from the

process taught by Longrigan et al as evidence from a passage in Patent '158:

*"[t]he mixture having the glass fibers distributed substantially evenly therethrough ..."* (col. 3 lines 39-42).

While Longrigan et al discloses separately supplying a low binder fiber mat and a support mat and forming them into a composite web before a foamable mixture is introduced, Longrigan et al does not teach using a supply roll of composite comprising a low binder fiber mat and a support web. However, absent any showing of unexpected benefit, it would have been obvious in the art to modify the process of Longrigan et al such that a roll of composite supply comprising a low binder fiber mat and a support mat is used instead of using two separate supply rolls as such is an art recognized effective alternative way for supplying a non-woven web and a covering layer into a belt-press foaming laminator as exemplified in the teachings of Hoffman et al (abstract; col. 1 lines 21-35, col. 5 lines 16-59; figure 1). Hoffman et al teaches providing a bottom covering layer by supplying a single roll of a composite comprising a mesh web such as a non-woven fleece and an aluminum facing web, and also providing a top covering layer by supplying a mesh web and an aluminum facing web (i.e. the same materials as component layers in the composite) using separate feeding rolls into a belt-press laminator to form a laminated foamed composite (col. 5 lines 16-59; figure 1). The teachings of Hoffman et al would have suggested to one in the art that, one could effectively and interchangeably supply a low binder fiber mat and a support mat as a composite on a single feeding roll or separately feed them in

different feeding rolls to a foam injection station and a laminating station. An incentive for one in the art to supply them as a composite in a single feeding roll would have simply been to obtain a self-evident advantage of simplifying the process (i.e. obviating the need to use multiple feed rollers and the need to synchronize the feeding speed of a low binder fiber mat supply and a support mat supply).

With respect to claim 3, see column 14 lines 1-6 of the Longrigan et al patent.

With respect to claim 4, see figure 1 of the Longrigan et al patent, and column 9 lines 8-47 and figure 6 of the Gluck et al patent. Note: the Gluck et al patent has been incorporated by reference by Longrigan et al (col. 14 lines 7-16).

With respect to claim 5, facing sheets in the process Longrigan et al are disclosed in US Patent 4,572,865 issued to Gluck et al (col. 14 lines 12-16). In column 2 lines 60-67, Gluck et al teaches using "... *fiberboard, ... aluminum, asphalt saturated felt, ... an asphalt saturated felt, ...*" (col. 2 line 60 to col. 3 line 2).

With respect to claims 6 and 8, see column 15 lines 23-45 of the Longrigan et al patent.

With respect to claim 7, see column 2 lines 32-39 of the Longrigan et al patent.

With respect to claims 9-10, see figure 2 of the Longrigan et al. For the purpose of meeting the limitation in this claim, 1<sup>st</sup> expandable fiber mat (48) and 2<sup>nd</sup> expandable fiber mat (52) are taken to be the recited second low binder fiber mat and second support mat, respectfully, while 3<sup>rd</sup> expandable fiber mat (52') and

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fibrous facing sheet (31) are taken to be the recited 1st low binder fiber mat and 1st support mat, respectively. See column 15 lines 43-45 of the Longrigan et al patent for claim 10.

With respect to claims 12-13, see column 14 lines 17-54 and figures 1-2 of the Longrigan et al patent.

With respect to claim 20, it would have been imperative to dispose a composite to a supply roll such that a support mat is located below a low binder fiber mat. Otherwise, a support mat would be facing an injected foamable mixture instead of a low binder fiber mat. Moreover, see figure 1 of the Hoffmann et al patent where no deflection roller or idler roller is used in feeding a composite comprising a nonwoven web and a facing web on a single supply roll to a belt press laminator. Additionally, it is not critical in the process of Longrigan et al to use deflection rolls. For these reasons, the limitation in this claim would have been obvious in the art making a laminated foam composite in the modified process of Londrigan et al.

#### **(10) Response to Argument**

On page 6 full paragraph 1, Appellant argued that while the meshwork webs of Hoffman cover "webs of woven fabric, knit fabric, grids, and woven and non-woven fiber fleeces in the widest sense" (emphasis added, quotation in original), "... woven and knit materials are too intertwined to be expandable and as such could not qualify as a "low binder fiber mat"" (quotation in original). However, Hoffman et al, as correctly noted by Appellant, also teaches using "non-woven



fiber fleeces in the widest sense". More important, Londrigan et al, the primary reference, teaches using an expandable fiber mat which is taken to be a "low binder fiber mat" (col. 14 lines 7-39). See for example column 3 lines 5-17 of the Hipchen et al '158 patent which was incorporated by reference in the Londrigan et al patent. The key issue here is whether or not, it would have been obvious in the art to modify the process of Londrigan et al such that instead of supplying a low binder fiber mat and a support mat using separate feeding rolls, a single feeding roll of composite comprising a low binder fiber mat and a support web is used. As noted above, Hoffman et al teaches supplying a roll of a composite comprising a mesh web (e.g. non-woven web) and an aluminum facing web for a bottom covering layers and separately supplying a mesh web and an aluminum facing web (i.e. the same materials as component layers in the composite) for a top covering layer in forming a laminated foamed article (col. 5 lines 16-59; figure 1). The teachings of Hoffman et al would have suggested to one in the art that, one could effectively and interchangeably supply a low binder fiber mat and a support mat as a composite in a single feeding roll or feeding them using two separate feeding rolls into a belt-press laminator to form a laminated foam composite (figure 1). An incentive for one in the art to supply them as a composite in a single feeding roll would have simply been to obtain a self-evident advantage of simplifying the process (i.e. obviating the need to use multiple feed rollers and the need to synchronize the feeding speed of a low binder fiber mat supply and a support mat supply).

On page 6 last full paragraph 2 to page 7 full paragraph 1, Appellant argued that only through the lens of Appellant's application "would one read the meshwork web of Hoffman and reasonably see a low binder fiber mat.". Accordingly, "... Hoffman does not suggest one of ordinary skill in the art to effectively combine and interchangeably supply a low binder fiber mat and a support mat as a composite in a single feeding roll. It is respectfully submitted that, Appellant is misconstruing Examiner's position. Nowhere in Examiner's office action has Examiner equates the meshwork web (e.g. non-woven web) of Hoffman to a low binder fiber mat. Rather, as has been repeatedly noted above, Londrigan et al teaches using a low binder fiber mat. Once again, the main issue here is whether one in the art reading the collective teachings of the Londrigan et al and Hoffman et al would have suggested one in the art to modify the process of Londrigan et al such that a single supply roll of composite comprising a low binder fiber mat and a support web is used instead of supplying a low binder fiber mat and a support mat from two separate feeding rolls. Not only Longrigan et al and Hoffman et al are directed to the same field of endeavor, their processes are substantially similar. For this reason, absent any showing unexpected benefit, since feeding a composite comprising a nonwoven and a facing web in a single supplying roll is an art recognized equivalent to feeding a nonwoven and a facing web using separate supply rolls as exemplified in the teachings of Hoffmann et al, it would have been obvious in the art to modify the process of Londrigan et al such that a composite comprising a low binder fiber mat and a facing (taken to

naturally function as a support) mat is delivered using a single feeding roll.

Moreover, as had been noted above, an incentive for one in the art to supply them as a composite in a single feeding roll would have simply been to obtain a self-evident advantage of simplifying the process (i.e. obviating the need to use multiple feed rollers and the need to synchronize the feeding speed of a low binder fiber mat supply and a support mat supply).

On page 7 full paragraph 1, Appellant argued that, "Discovery of source of a problem may render an invention patentable even though the remedy may be obvious once the source of the problem is identified ... MPEP 2141.02"

(emphasis added). Examiner agrees. However, in the present case, Appellant is **not** expected to have uniquely discovered the alleged problems such as "... stretching of low binder mats when unrolling ... low binder mat contacts and adheres to itself in supply rolls thus causing it to pull apart upon unrolling ..."

noted on page 8 lines 1-8. If these alleged problems exist at all, these would have been apparent or observed by on-line operators of the process, because these alleged problems should/would have been readily been seen or visible to the operators. By inference to the above Appellant's argument, once the alleged problem is observed, the solution of supplying a composite comprising a low binder mat and support mat in a single feeding roll may have been obvious in the art.

On page 8 full paragraph 2, Appellant argued that "The problem of Hoffman is unrelated to the problem addressed by the present invention and the solution of

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Hoffman is unrelated to the solution of the present invention.”. However, absent any showing of unexpected benefit, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

On page 8 last paragraph, Appellant has already established that “... none of the cited references suggest combining a low binder fiber mat with a support mat to form a composite web that is fed from a single roll in the foaming process.”.

That’s precisely the reason why the claims have been rejected under 35 USC 103 instead of 35 USC 102. Equally important, Appellant is clearly resorting to the classic piecemeal analysis of the references. While the references each taken in isolation do not teach supplying a composite comprising a low binder fiber mat and a support mat on a single feeding roll, the collective teachings of Longrigan et al and Hoffman et al would have suggested one in the art that feeding a composite comprising a low binder fiber mat and a support mat on a single feeding roll can successfully be used in the process of Longrigan et al.

On page 9 full paragraph 2, Appellant argued that, “... There is insufficient support to conclude that Hoffman et al suggests to one of ordinary skill in the art that one could effectively and interchangeably supply a low binder fiber mat and a support mat as a composite in a single feeding roll.”. Examiner strongly disagrees with Appellant’s assertion. The collective teachings of Londrigan et al

and Hoffman would have reasonably suggested to one in the art that an expandable fibrous mat and a facing sheet in a process of Longdrigan et al can effectively/succesfully be supplied as a composite in a single feeding roll instead of being fed using two separate feeding rolls.

As for Appellant's argument on page 9 last full paragraph to page 10 full paragraph 1 regarding claim 2, the limitation in this claim is expected to naturally flow from the process taught by Longrigan et al as evidence from a passage in Patent '158: "[t]he mixture having the glass fibers distributed substantially evenly therethrough ..." (col. 3 lines 39-42).

As for Appellant's argument on page 10 2<sup>nd</sup> full paragraph regarding claim 12, at the outset, the limitation in this claim does not require positively supplying a 2<sup>nd</sup> composite web on a single roll. For this reason, the limitation in this claim fails to distinguish over an embodiment illustrated in figure 2 of the Longrigan et al patent. In any event, for the same line of reasoning as a 1<sup>st</sup> composite, it would have been obvious in the art to feed a 2<sup>nd</sup> composite comprising an expandable fibrous mat and a facing web using a single supply roll.

As for Appellant's argument on page 10 last two lines to page 11 line 16 regarding claim 13, see an embodiment illustrated in figure 2 and column 14 lines 17-54 of the Longrigan et al patent.

As for Appellant's arguments on page 11 last two paragraphs to page 2 full paragraph 4 regarding claims 14-16, these are moot, because Examiner has withdrawn the rejection on these claims.

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On pages 12-13, Appellant argued that Longrigan "... still requires contacting the low binder fiber mat and a roller- the figures of Longrigan ... reveal rollers contacting both sides of each facing sheet .... there is no suggestion that any roller may be eliminated from the process.". Examiner strongly disagrees with Appellant's assertion. As noted above and in the prior office action, Hoffman et al teaches feeding a composite comprising a nonwoven web and a facing web on a single supply roll to a belt press laminator, where no deflection roller or idler roller is used (figure 1). Moreover, it is quite clear that there is no criticality to the process of Longrigan et al for using various deflection rollers illustrated in figures 1-2. For this reason, it would have been obvious in the art to feed a composite from a single feeding roller to a belt press laminator without using a deflection roller.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

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For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

scy



Conferees:

Richard Crispino



Steven Griffin

